DOCUMENT RESUME

ED 083 122 SP 006 575

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TITLE	Student Teachers Self Analysis of Teaching Behavior.
PUB DATE	73
NOTE	19p.; Paper presented at the Annual Meeting of the American Educational Research Association, New Orleans, Louisiana, February 1973
EDRS PRICE	MF-$0.65 HC-$3.29
DESCRIPTORS	Behavior Development; Elementary School Teachers; *Measurement Instruments; Personality Assessment; *Program Evaluation; *Teacher Behavior; *Teacher Evaluation; *Teacher Improvement; Teacher Response; Video Tape Recordings
IDENTIFIERS	Baruch Behavior Analysis

ABSTRACT

Analyses of teaching behavior, transcribed from videotaped samples by elementary student teachers, who used a new instrument, Baruch Behavior Analysis, were examined for accuracy, reliability, quantification, and interpretation. The instrument helps the student to analyze himself and prescribe improvement for his behavior as to extent and patterns of teacher talk, distribution of pupil talk, categories of teacher questions, kinds of responses teachers make to student verbalizations, and quality of teacher's nonverbal behavior. The data indicated that most student recognized the need to improve their teaching and made specific appropriate recommendations for amelioration. (Author)

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OCT 25 1973

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Student Teachers Self Analysis of Teaching Behavior

by

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Paper Prepared for Presentation at AERA Meeting in New Orleans,
February 27, 1973

A great deal of experimentation has been generated by the current press for developing performance-based criteria by local, state and federal officials. Some colleges and universities have already prepared lists of behaviors necessary in the performance of elementary school teachers, with criteria to determine their success in the performance of these behaviors. Many universities are still working to decide what are the necessary skills, knowledge, and attitudes that a student must demonstrate, in social and philosophical foundations, in special education, reading, mathematics and science, early childhood, and in bilingual programs, to be a competent teacher. Some colleges far advanced in the process of development of performance competence criteria indicate that their faculty are able to evaluate only a small amount of their students' teaching behavior in classrooms. Where college programs require teaching skill development, in simulation or micro-teaching, prior to student teaching, it is frequently difficult to monitor teaching behavior of the students in the classroom.

The possibility of increasing objectivity in evaluating teaching behavior became possible with the work of Flanders. Some two hundred systems which have been developed are listed in volumes one and two of Mirrors for Behavior.[1] Yet, despite the plethora of systems, no one system has been found completely satisfactory. The instruments tend to examine either cognitive or affective behavior but are not comprehensive enough to include many critical events that occur in the teaching process.

Evaluation of teaching tends to be resisted by teachers who fear it will dehumanize and mechanize teaching. Flanders suggested that since student teachers needed training in the control of their own behavior they should learn how to use tools for the collection of reliable information about the events in their classrooms. Experience has indicated that student teachers examining their behavior, as exhibited on video tape, tend to see only very generalized and global activities. They must examine these behaviors with an instrument that provides a framework for objective analysis. Many researchers found that teachers need feedback about their behavior in order to change it. Self-analysis is not only less painful than analysis by others but may be more illuminating and motivating for change.

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[1] Mirrors For Behavior, Research for Better Schools and Temple University, Philadelphia, Pennsylvania, 1968.

Borrowing from and building on the ideas of Flanders, Gallagher and Aschner, Parsons, Galloway and Bloom, Professor Dunay devised a system, named the Baruch Behavior Analysis, for quantifying and interpreting classroom teaching behavior. This instrument includes cognitive, affective and nonverbal components, and self-prescriptions for improvement of teaching. This paper reports a pilot study with this instrument, as used by elementary and early childhood student teachers at Bernard M. Baruch College, CUNY, in the spring and fall semesters of 1972.

Baruch Behavior Analysis Instrument

The Baruch Behavior Analysis requires the student to assess and prescribe improvement for his behavior as to the extent and patterns of teacher talk, the distribution of pupil talk, categories of teacher questions, the kinds of responses teachers make to students' verbalizations, and the quality of the teachers' non-verbal behavior. The students are also asked to categorize their objectives according to the level of skills, knowledge, and attitudes they were seeking to develop, to explain how they obtained evidence that this had been achieved, and to determine what they planned as a follow-up for the lesson.

Among additional forms of self-prescription, students identify questions calling for recall of facts and restructure them to more complex or to divergent forms. In the nonverbal component, where students identify "inhibiting" teaching behavior, such as lack of eye contact, students indicate their understanding of behaviors which would be "encouraging" by specifying them.

The instrument contains six components. The extent of teacher talk vs. pupil talk is quantified, and distribution of pupil talk among participating children is ascertained. Pupil talk is not analyzed beyond this section. Teacher talk patterns are distributed among a series of categories which include instruction and management behaviors. Teacher questions are examined in detail as to the quantity of convergence or divergence. The responses student teachers make to children's questions, comments, or responses are coded as constricting or non-constricting. All coded items are quantified and analyzed by the student teacher, as the basis for self-prescription for improvement. Nonverbal behavior, distributed between those that are inhibitory and encouraging is coded directly from a videotaped teaching sample. All other components are coded, quantified and analyzed from the student's transcription of his videotape.

Videotapes

Videotaped teaching samples were recorded by the College Technician, by arrangement with the student teacher, at the school where the student teaching placement is ongoing. Students took small groups of children out of the classroom to an empty room for taping. There were two reasons for this plan. Some classroom teachers were disturbed by the idea of classroom videotaping as an intrusion that might distract the children or disrupt their planned schedules. Furthermore, videotaping outside of the classroom permitted student teachers to experiment with materials and teaching behaviors which they might not be able to use in the classroom under the supervision of the cooperating teacher. Videotapes usually were of ten to twelve minutes' duration. In making transcriptions from tapes, students were instructed to sample equally from the beginning, middle and end of the episodes recorded.

Coding

All utterances were coded and weighted in the same manner. Students were required to distinguish between utterances that were sentences, phrases, or one-word units. A dictionary definition was used to distinguish a sentence from a phrase, requiring "a group of words constituting a grammatically complete statement clearly not part of a larger structure", with a complete subject and predicate, where grammatically required. Subjectless imperatives, of more than two-words, were coded as a sentence. Subordinated clauses were to be coded as phrases.

Weights were assigned as follows: sentences were weighted by ten, phrases by two and single-word utterances by one. In all cases summed weighted totals were used to derive percentages for each category in each component.

Pilot Samples

Student teaching occurs in the two semesters of the senior year at Bernard M. Baruch College in current programs in elementary and early childhood education. Intact, available classes involved in two samples included 33 students in the Spring and 38 in the Fall 1972 semesters. Of students in the Spring group, nine who were first-semester student teachers, were included in the Fall sample as second-semester students.

These Baruch College students all entered prior to the open admissions policy, having qualified for entrance under past procedures. All of the students in the Fall 1972 sample were young and female, and except for two Black and one Oriental student, all the rest were white. The Spring sample included three young white males. Of the females in the Spring 1972 sample, three were Black and one Oriental. Four of the females were more mature women, including two Black women who had prior experiences as paraprofessionals in public school classrooms. Many, if not most students carry another course or two, outside of the education department, during the senior year, in addition to student teaching. All student teachers attend three-hour weekly seminars at the College.

Many of the students contributed to their own support through part-time employment in various capacities. Based on considerations of age, sex, race and socio-economic levels, the students in these samples appear to represent a fair cross-section of the general population of a large urban university.

Training

Each student teacher received a copy of an 80-page draft of the Baruch Behavior Analysis, a booklet which includes the instrument for analysis of teaching, as well as instructions, illustrations and practice exercises.

Students in the Spring sample participated in four one-hour training sessions early in the semester, as part of their three-hour weekly seminars In the fall, training was concentrated in three two-hour sessions for first term student teachers, apart from the seminar, with no additional training for second-semester students. Students determined for themselves the extent of their mastery of the instrument.

It was intended that all student teachers would complete three analyses of videotaped lessons. In the Fall sample, it was only possible to complete one lesson per student. In the preceding Spring, first-semester students completed two analyses but most second-semester students completed only one. Since many young women in the graduating class were preoccupied with wedding preparations, they were unwilling to complete second lesson analyses.

Lack of time prevented corrective training. As a result, some misinterpretations were only ascertained by checking completed analyses. An obvious need for revision in procedures is to determine student mastery of the instrument prior to use with videotapes.

Revisions in Instrument

While no major revisions were made in the instrument, from its use in the Spring to its use in the Fall, a number of minor changes were made to clarify, simplify and provide more practice exercises.

In the interest of simplification, the number of categories were reduced and, wherever possible, were constituted as dichotomies. For example, a contrast is made between instruction and management. Instruction is separated into teacher transmission and interactive teacher-child exchanges. In the management category a further polarization exists between classroom and behavior management.

Instructions for analysis of the data were revised in the direction of further specificity and detail.

Findings

Student analyses of their videotaped teaching samples were studied for transcription accuracy, coding reliability, quantification procedures and interpretation of instructions, as well their self-prescriptions for improvement.

Transcription Accuracy

Since the student transcription from the videotape constitutes the basis for all calculations, the Fall 1972 sample was checked for accuracy of transcription. Congruence in transcription of pupil talk was 100 per cent. Of the 37 videotapes checked, there were 395 points at which the student transcriptions of teacher talk differed from the researcher's. In 177 cases, or 45 percent of all points of difference, there was no change in the calculation of teacher talk, because one word was substituted for another, without changing the coding or calculation. In 45 cases, one word was omitted by the Student Coder, which would have increased total teacher talk for the 37 students by a weighted total of 45. Similarly, the Students omitted 49 phrases, which would have added 98 to the weighted total teacher talk. The 110 sentences omitted by students would have added 1,100 to the weighted total teacher talk. Correcting deletions which changed sentences or one-word utterances into phrases would have increased weighted total teacher talk by 49. The 1,293 addition to total weighted teacher talk would increase average weighted teacher talk per transcription by 35.

As shown on Table I, average weighted total teacher talk for 37 students in the Fall 1972 samples was 454. Adding an average of 35 to this figure increases the teacher talk totals by 8 percent, which is the extent of undertranscription of teacher talk.

A detailed analysis of 33 of the 37 Fall 1972 sample transcriptions indicated that only 2 transcriptions were free of error, as shown on Table II. One-third of the students altered 5 or fewer utterances, either by deletion, addition or substitution of wording, but on the average only 8 words per student were changed. Two-thirds of this group changed 10 utterances or less, with the remaining one-third showing alterations in 11 to 39 utterances. It should be noted that deletions greatly outnumbered additions and substitutions.

Intercoder Reliability

Intercoder reliability was determined in two ways, comparison of the judgments of two trained coders, neither of whom is a student, and a comparison of the student's own coding with that of a trained coder. As shown on Tables III and IV, the two trained coders reached somewhat higher correlations than did the student and the trained coder. It should be noted that Table II refers to the Spring 1972 sample of 32 students and Table III refers to the Fall 1972 sample of 37 students, although one judge is represented on both tables.

On Tables III and IV intercoder reliability for distribution of teacher vs. pupil talk was 96 per cent. In coding patterns of teacher talk, there was higher correlation between trained judges, 81 percent or above, than between student and trained judge where the correlations were from 80 to 84 percent, except for behavior management, for which the figure was 44 percent. Correlation coefficients for student vs. trained judge were much lower than for the two trained judges, in coding types of teacher questions, and the constricting vs. non-constricting characteristics of teacher responses to children's questions and comments. The two trained judges had correlation coefficients ranging from 69 to 96, while the student vs. trained judge had correlations from zero (for teacher responses) to 74.

Quantification Procedures

As noted above, minor changes were made in instructions for coding a word, phrase or sentence, in the revised instructions used in the Fall 1972 student teacher sample, chiefly in clarifying the definition of a sentence by adapting a dictionary definition. Note that a group of words coded as a phrase receives a weight of 2, but if these words are thought to constitute a sentence, the weight jumps to 10.

Types and Distribution of Coding Errors

If participants make errors, results will be substantially different if they err in coding sentences as phrases, rather than phrases as sentences. As shown on Table V, of the 37 Fall transcriptions analyzed, 5 students made no errors in coding for sentence, phrase or one-word utterance, 10 erred only in coding phrases as sentences, 8 only in coding sentences as phrases, and 14 made both types of errors. Very few students made more than 3 errors of either type. In fact, a few students made large numbers of errors, as indicated on Table V.

Errors in coding for phrases and sentences were grouped into a few characteristic categories, as shown on Table VI and VII. As noted above, the definition for a sentence requires a full predicate, and half of all errors made miscoding phrases as sentences were due to overlooking the lack of a verb, as in, "What else?" Other categories were lack of subject, where needed, in complete predicate, lack of subject and predicate, and dependent clauses coded as sentences instead of phrases.

Two categories of error accounted for two-thirds of all errors in the Fall sample, when sentences were coded as phrases. These two categories are short sentences, such as "What happened", or sentences with contracted verbs, such as, "That's right."

Weighting Systems

Two questions about the weighting of phrases and sentences, in quantifying teacher vs. pupil talk, were pursued. The first question concerned the word count of actual sentences and phrases, and the second related to grade level effect on length of sentence or phrase. As shown on Table VIII, listing mean sentence and phrase lengths in transcriptions selected by random sampling, in the Spring and Fall groups separately, by grade level in which the student teacher was placed, there seems to be some correlation between grade level and mean length of utterance in the Spring but not in the Fall transcriptions. A larger sample might show otherwise.

As to mean length of utterance in the small samples shown on Table VIII, it should be noted that in both instances teacher talk sentences average 8 words, while phrases average about 3 words per utterance. The mean length of pupil sentences and phrases is not very different from that for teachers, in the Fall but not the Spring sample. There were some indications in the Spring 1972 sample of a possible correlation between length of sentence and grade level.

Self Prescriptions

Student self-prescriptions for improved teaching are shown on Table IX, distributed among these categories: distribution of teacher-pupil talk, patterns of teacher talk, teacher questions, teacher responses, teacher nonverbal behavior and other kinds of self-prescriptions. Combining the Spring and Fall 1972 samples, with a total of 70 students, all but about 8 wrote insightful and appropriate self-prescriptions for improvement in their teaching. Several were overly critical of their own performance.

The largest number of suggestions for improvement were made by students of their questioning techniques. Of the 248 suggestions for self-improvement, 70 or 29 percent concerned improved questioning skills. Many students indicated they should have encouraged more creative and complex thinking, by asking more varied or stimulating questions, or permitting children to make discoveries on their own. There were 48 suggestions for altering the frequency of teacher talk, primarily to encourage pupil involvement. Of the 36 suggestions to improve teacher responses, the majority wanted to encourage more pupil evaluation and involvement. Included in "other" recommendations were 15 concerning the need for more or better materials, 7 which suggested too many materials were used, and 7 indicated pacing was either too fast or too slow.

Discussion and Recommendations

The Baruch Behavior Analysis requires the student to measure and prescribe improvement for the amount of teacher and pupil talk and to quantify the extent of pupil participation. They also assess and recommend improvement for the patterns of teacher talk, the kinds of questions asked, the types of responses teachers make to students' questions and comments, and the quality of the teachers' non-verbal behavior. The students also categorize their objectives according to the level of skills, knowledge, and attitudes they were seeking to develop, to explain how they obtained evidence that this had been achieved, and to determine what they planned as a follow-up for the lesson. In addition, students state how they determined whether the pupils had the concepts prerequisite for the lesson and whether the materials were adequate to aid the children's understandings.

Problems noted above relate to transcription congruence, some forms of inter-coder reliability, coding errors and weighting considerations. It was interesting to note that, when students prepared their transcriptions, on first viewing a replay of their videotapes, they attempted to improve their performance by omitting some teacher talk which they perceived as redundant, or by rewording some utterances to improve their questioning techniques. The extent of such self-censorship, while not sufficient to distort the quantification to any substantial extent, indicates the probable gap between intent and performance.

In general, the higher coefficients of correlation between judges, than between student and judge, in inter-coder reliability, indicates the need for greater mastery by students, either through further training or demonstration of mastery in coding prior to coding transcriptions.

Allocating sufficient time for such mastery training, prior to videotaping and transcription would be necessary. However, it is likely that such mastery training could obviate the need for written transcriptions, permitting coding from videotape without the intervening step of writing a transcription of the dialogue. Such coding directly from videotape is estimated to reduce the time and labor of a complete analysis by one-half to two-thirds.

Examining the low coefficients of correlation on Table III, concerning the congruence of two judges in coding convergent and divergent questions, and teacher responses as constricting or non-constricting, it was found that there were probably two major reasons. One reason was the small number of items in these categories, where a small difference between judges caused a disproportionate change in correlation. The other reason was that one error, as to type, tended to be multiplied by consistent application. Clarity of definition should tend to reduce the second of error. In fact, an attempt was made to remedy this situation by reducing the number of categories in types of questions. Similarly, on Table IV, comparing a student judgment with a trained observer, low correlations on complex convergent questions, behavior management and the teacher response categories appeared to have the same causes as on Table III.

Coding errors, in distinguishing phrases from sentences, could be expected to decrease substantially with mastery training. It is interesting that, without such training, errors did not appear large enough to distort the results to any substantial degree.

The weights for sentence and phrase were selected because they had been used by other researchers, notably Parsons. While the random samples of Spring and Fall transcriptions indicate some overweighting of sentences, and underweighting of phrases, the difference, in the opinion of the writers, is not great enough to warrant change. Ease of multiplications, by current weights of 1, 2 and 10 would seem to counterbalance the desire for more exact weighting.

As to the effect of grade level placement on mean length of utterance, a larger sample might produce more reliable and clearer findings

It was intended to arrange for 3 videotapings, and subsequent analysis, for each student. Considerations of limited student time, due to attendance in other courses and in part-time work, tend to restrict the student time available for skill development in self-analysis of student teaching. Limited faculty time during the semester, and lack of needed assistance to check coding and analyses also limited possibilities to offer feedback to students on mastery and analysis. The possibility of training students to mastery of coding, prior to student teaching, may permit more frequent videotaping, live coding without transcription, and the application of self-prescriptions to succeeding videotapes.

Originally, it was intended to offer students faculty guidance in analysis of their mastery and skill development, based on their videotapes. It was suprising to find out how insightful student self-prescriptions were, without faculty guidance. However, analyses of several students' videotapes indicate that self-prescription without guidance or feedback was not always sufficient for the extent of improvement in teaching needed. For example, one student evaluated her nonverbal behavior as attentive, but a college supervisor who viewed her videotape stated that the student had been oblivious to one of the three children with whom she was working. Some students, who thought they were giving discovery lessons, were telling children all that was supposed to be discovered. There were several videotapes in which students were teaching concepts which had obviously been well learned previously, usually because no effort was made to assess children's levels of understanding.

The pilot study reported in this paper suggests that many students profited from self-analysis of their student teaching behavior as represented on videotape. It is likely that these students would have profited even more from faculty feedback and guidance. Some students, who did not perceive their behavior accurately, needed specific forms of faculty feedback. With mastery of coding skills and with live coding, eliminating time-consuming transcription, more frequent analyses, and prompt feedback, there may be greater development in skillful teaching performance.

TABLE I

Fall 1972 Student Teacher Codes, Baruch Behavior Analysis:
Distribution of Student Calculation of Weighted Teacher Talk

Weighted Total Teacher Talk	No. of Students
200 - 299	5
300 - 399	12
400 - 499	6
500 - 599	10
600 - 699	2
700 - 799	0
800 - 899	1
900 and over (1,216)	1
Total	37
Weighted teacher talk per student transcription	454

Table II

Fall 1972 Student Teacher Transcriptions From Videotaped Teaching Samples: Comparison of Transcription by Self vs. Trained Graduate Assistant n=33

Item	No. of Students	Words deleted, added or changed	
(1)	(2)	(3) No.	(4) Mean (Column (3) over Column (2))
Self-deletions from Videotape Transcription:[1]			
0	2	0	0
5 or less	11	89	8
6 - 10	8	230	29
11 - 15	5	251	50
16 - 20	5	338	68
More than 20[2]	2	201	100
Total	33	1,309	40
Self-additions to Videotape Transcription:			
0	11	0	0
5 or less	19	106	6
6 - 10	1	13	13
11 - 15	1	28	28
16 - 20	0	0	0
More than 20[3]	1	60	60
Total	33	207	6
Self-changes in Wording:			
0	12		
5 or less	18		
6 - 10[4]	3		
11 - 15	0		
16 - 20	0		
More than 20	0		

[1]Refers to utterances or parts of utterance deleted.
[2]The highest number was 39.
[3]The highest number was 22.
[4]The highest number was 10.

TABLE III

Spring 1972 Student Teacher Codes, Baruch Behavior Analysis of Videotaped Teaching Samples: Correlation Coefficient of 2 Coders,[1] Researcher vs. Graduate Assistant[2]

	Percent Correlation Coefficient	n
1. DISTRIBUTION OF TALK		
Teacher Talk and Pupil Talk	96	32
2. PATTERNS OF TEACHER TALK		
a. Instruction	81	32
b. Q, Q/R, R	98	32
c. Management-Classroom	96	32
d. Management-Behavior	89	32
3. TYPE OF TEACHER QUESTIONS		
a. Routine	96	32
b. Memory	84	32
c. Convergent	71	32
d. Divergent	69	32
4. TYPE OF TEACHER RESPONSES TO CHILDREN'S QUESTIONS AND COMMENTS		
Constricting and Non Constricting	71	32

[1] Mixed moded ANOVA for Parametric Data, 2 treatments.
[2] The correlation coefficient represents the judgment of two trained coders, neither of whom is a student.

TABLE IV

Fall 1972 Student Teacher Codes, Baruch Behavior Analysis of Videotaped Teaching Samples: Correlation Coefficients of 2 Coders, Self vs. Expert Coder[1]

	Percent Correlation Coefficient	n
1. DISTRIBUTION OF TALK		
Teacher Talk and Pupil Talk	96	38
2. PATTERNS OF TEACHER TALK		
a. Instruction	80	35
b. Q and Q/R	81	35
c. Management-Classroom	84	35
d. Management-Behavior	44	35
3. TYPE OF TEACHER QUESTIONS		
a. Convergent-simple	74	36
b. Convergent-complex	41	36
c. Divergent	70	36
4. TYPE OF TEACHER RESPONSES TO CHILDREN'S QUESTIONS AND COMMENTS		
Constricting and Non-constricting	03	36

[1]Mixed Model ANOVA for Parametric Data, 2 treatments.

TABLE V

Fall 1972 Student Teacher Codes, Baruch Behavior Analysis: Distribution of Errors in Coding Sentences and Phrases, and Frequency of Errors.

Errors	No. of Students
No errors	5
Errors only in coding phrases as sentences	10
Errors only in coding sentences as phrases	8
Errors in coding phrases as sentences and sentences as phrases	14
Total	37

Frequency of errors per student in coding sentences as phrases and phrases as sentences

Number of errors	No. of students coding phrases as sentences	No. of students coding sentences as phrases
0	13	15
1	6	10
2	6	4
3	6	1
4	1	0
5	1	1
6	1	3
7	0	0
8	2	2
9	0	1
More than 9[1]	1	0
Total Number of Students	37	37

[1]The maximum number of errors per student, per type of error. The student who made 18 errors of one type made only one error of the other type.

TABLE VI

Fall 1972 Student Teacher Codes, Baruch Behavior Analysis of Videotaped Teaching Samples: Frequency of Errors of Coding, in Coding Phrases as Sentences, by Category of Error

	Category of Error	Number of Students[1] n=37	Number of Errors
1.	Lack of verb, such as, "What else?", "How about a potato?"	19	33
2.	Lack of subject where sentence structure requires it, such as, "Want to get your number?", "Taste like jello."	3	5
3.	Incomplete predicate, such as, "Well, this man was---."	4	4
4.	Lack of subject and predicate, such as, "Very good, Monica."	6	8
5.	Dependent clause, part of larger whole, starting with, "Because", "When", "Like."	9	17
	Total of errors		67

[1]Since one student may make errors in several categories, number of students cannot be summed.

TABLE VII

Fall 1972 Student Teacher Codes, Baruch Behavior Analyses of Videotaped Teaching Samples: Frequency of Errors of Coding, in Coding Sentences as Phrases

Category of Error	Number of Students[1] n=37	Number of Errors
1. Short sentences, frequently an imperative, such as "Turn around here", "What happened then."	13	27
2. Word tangles, or false starts, starting sentence with unneeded words, such as, "And so", "Well, no", followed by a complete sentence.	6	11
3. Contracted verbs, such as, "That's right", "It's true."	15	27
4. Other errors	8	18
Total errors		83

[1]Since one student may make errors in several categories, number of students cannot be summed.

TABLE VIII

Fall 1972 Student Teacher Codes, Baruch Behavior Analyses: Random Sample of Transcriptions, by Length of Sentence and Phrase

Grade Level	Teacher Talk		Pupil Talk	
	Sentence	Phrase	Sentence	Phrase
Prekindergarten	8.1	2.6	5.9	2.3
Second	6.8	5.8	6.1	2.2
Third	7.1	2.8	6.3	2.4
Fourth	9.6	2.5	15.0	5.0
Fourth	8.8	2.9	9.1	2.2
Sixth	7.5	2.2	6.0	2.6
Total	56.5	21.1	55.1	19.7
Mean	8.1	3.0	7.9	2.8

Spring 1972 Student Teacher Codes, Baruch Behavior Analyses: Random sample of Transcriptions, by Length of Sentence and Phrase

Grade Level	Teacher Talk		Pupil Talk	
	Sentence	Phrase	Sentence	Phrase
Prekindergarten	4.9	2.0	5.1	3.4
Kindergarten	6.5	4.0	6.0	7.0
First	9.3	4.0	4.2	3.0
Second	7.7	6.0	6.1	4.6
Fourth	9.3	2.5	4.3	4.4
Fifth	9.0	2.3	7.8	3.0
Total	46.1	20.8	33.5	25.4
Mean	7.7	3.5	5.6	4.2

TABLE IX

Spring and Fall 1972 Samples Combined: Student Self Prescriptions for Improved Teaching

	Number of Students	
1. TEACHER-TALK - PUPIL TALK		
a. Less Teacher Talk and intervention more observation	23	
b. Children should have more time to think, to use materials, and talk about them	10	
c. Shorter or Longer Teacher Sentences	8	
d. Encourage more complete Pupil response and participation	7	
Sub-Total		48
2. PATTERN OF TEACHER TALK		
a. Refrain from telling Child	11	
b. Clear concise language and less Management	10	
c. Present problems for children to solve or encourage them to formulate their own	7	
d. Give clues and make suggestions or made too many	4	
e. More approval	2	
Sub-Total		34
3. TEACHER QUESTIONS		
a. Encourage creative or complex thinking	12	
b. Permit children to discover on their own	11	
c. More variety and better questions	9	
d. More divergent questions	9	
e. Less simple convergent (recall facts)	8	
f. More stimulating questions	7	
g. Questions should be less structured	5	
h. Ask children to predict consequences	5	
i. Designate pupil to respond after question is presented	2	
j. Ask questions based on children's experiences	2	
Sub-Total		70

Table IX Continued

	Number of Students	
4. TEACHER RESPONSE CATEGORIES		
a. Encourage more pupil evaluation and involvement	20	
b. Listen more carefully to children's responses	4	
c. Don't repeat pupil responses	4	
d. Encourage children to apply ideas in another setting	3	
e. Restructure children's language	2	
f. Reinforce children's thinking	2	
g. Don't act as sole authority	1	
Sub-Total		36
5. TEACHER NON VERBAL BEHAVIOR		
a. More assurance, less nervous	9	
b. Improve voice quality (louder, softer, more variety)	8	
c. More eye contact	3	
d. Move about and focus attention on all	2	
Sub-Total		22
6. OTHER RECOMMENDATIONS		
a. More or better materials required	15	
b. Too many materials used	7	
c. Pace too slow or fast	7	
d. Children needed prerequisite concepts or had to do preliminary research to attain concepts in this lesson	3	
e. Children could derive information by observing materials	2	
f. Subject matter taken in smaller steps	2	
g. Teacher should try out material or experiments prior to lesson	2	
Sub-Total		38
Grand-Total		248